To: Christopher.Saari@wisconsin.gov[Christopher.Saari@wisconsin.gov]
Cc: Egan, Robert[egan.robert@epa.gov]
From: Hanson, Kristen
Sent: Tue 2/16/2016 5:36:50 PM
Subject: FW: Tower Standard Hydraulic Conductivity Testing

Good Morning Chris,

Slug tests are reasonable and field generated hydraulic conductivity values are certainly needed. I agree with you and Bob, if high conductivity wells are encountered, another field test could be completed at a later time.

To approve this Scope of Work, we will need a proposal and will condition the work contingent on data sharing and notice requirements. Also, REI has not met the conditions of the previous well installation, sampling, and survey work. The conditions will need to be met prior to any new work approvals.

I look forward to working with you on this project,

Kristen Hanson

Environmental Specialist

Tribal Natural Resource Department

Lac du Flambeau Band of Lake Superior Chippewa Indians

Phone: (715)588-4290

Cell: (715)614-4644

From: Egan, Robert [mailto:egan.robert@epa.gov]
Sent: Friday, February 12, 2016 8:46 AM
To: Saari, Christopher A - DNR
Cc: Hanson, Kristen; Robinson, John H - DNR; Kamke, Sherry
Subject: RE: Tower Standard Hydraulic Conductivity Testing

Dave,

Thank you for the information. I agree that if the wells recover quickly, that is still good information at this point in the investigation. I don't believe there is a need to do a pump test now, especially in winter time with disposal of water. We can re-evaluate the need later.

I'm not sure we can meet the notification requirements if the team planned to be in the field early next week, but this can wait the short time it will take to properly get notification complete. Another round of gw samples would be useful if possible.

I will be off work on Monday, but you can call my cell phone to discuss. 708 296-0102 I will be back to the office on Tuesday.

Thanks again for the information

Bob Egan

Corrective Action Manager

Underground Storage Tanks Section

RCRA Branch

EPA Region 5

(312) 886-6212

(312) 692-2911 (fax)

From: Saari, Christopher A - DNR [mailto:Christopher.Saari@wisconsin.gov]
Sent: Thursday, February 11, 2016 4:14 PM
To: Egan, Robert <egan.robert@epa.gov>
Cc: KHanson@ldftribe.com; Robinson, John H - DNR <John.Robinson@wisconsin.gov>
Subject: RE: Tower Standard Hydraulic Conductivity Testing

I just talked with Dave Larsen and he was OK with collecting the water level measurements and calculating velocities, gradients, etc.

He did raise another issue, though, on which I would appreciate some feedback. Larsen said that they observed during well development that the water levels in a couple of the MWs scarcely dropped while they were being actively pumped. He's concerned that water level recovery will occur too quickly following insertion and removal of a stainless steel slug to allow for any meaningful measurements, even with a datalogger. In that case, options would include doing a mini-pump test on those particular MWs, or just accepting the fact that those wells exhibit extremely high conductivities and leave it at that. I'm leaning towards the second option, but I'm curious to hear what you think.

As far as timing goes, Larsen thought that, pending approval, they might potentially be able to do this work next week. He added that, even if the hydraulic conductivity testing SOW isn't approved in time, he could probably still get a field crew out early next week to collect the second round of groundwater samples approved in a previous PECFA cost request. This work, too, would be subject to prior notification to all parties involved.

I'll be out of the office tomorrow, so I guess we can discuss this further on Monday morning. Thanks!

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Chris Saari

Phone: (715) 685-2920

Christopher.Saari@Wi.gov

From: Saari, Christopher A - DNR
Sent: Thursday, February 11, 2016 3:42 PM
To: 'Egan, Robert'
Cc: KHanson@ldftribe.com; Robinson, John H - DNR
Subject: RE: Tower Standard Hydraulic Conductivity Testing

That makes sense; I'll ask REI to include those calculations in the SOW.

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Chris Saari

Phone: (715) 685-2920

Christopher.Saari@Wi.gov

From: Egan, Robert [mailto:egan.robert@epa.gov]
Sent: Thursday, February 11, 2016 1:34 PM
To: Saari, Christopher A - DNR
Cc: KHanson@ldftribe.com; Robinson, John H - DNR

Subject: RE: Tower Standard Hydraulic Conductivity Testing

Thanks, Chris.

The only comment I have about the proposal is whether they can provide some average velocity calculations as part of the results package, and make some general observations about vertical and horizontal gradients (variation in results, steep/shallow gradients, etc.), since they can get another round of water levels when they are in the field.

Thank you.

Bob Egan

Corrective Action Manager

Underground Storage Tanks Section

RCRA Branch

EPA Region 5

(312) 886-6212

(312) 692-2911 (fax)

From: Saari, Christopher A - DNR [mailto:Christopher.Saari@wisconsin.gov]
Sent: Thursday, February 11, 2016 1:28 PM
To: Egan, Robert <egan.robert@epa.gov>
Cc: KHanson@ldftribe.com; Robinson, John H - DNR <John.Robinson@wisconsin.gov>
Subject: RE: Tower Standard Hydraulic Conductivity Testing

Bob, I'll get you something when I receive it from REI. I think they were looking for feedback from EPA and LDF before finalizing, so I will pass on Kristen's comments re: slug tests.

I terms of previous testing, I found the attached in REI's May 1999 Phase II Site Investigation Report. Using the Hazen Method, they estimated hydraulic conductivity at their MW2 at 16.3 ft/day (5.76×10^{-3} cm/sec).

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Chris Saari

Phone: (715) 685-2920

Christopher.Saari@Wi.gov

From: Egan, Robert [mailto:egan.robert@epa.gov]
Sent: Thursday, February 11, 2016 12:56 PM
To: Saari, Christopher A - DNR
Cc: KHanson@ldftribe.com; Robinson, John H - DNR
Subject: RE: Tower Standard Hydraulic Conductivity Testing

Chris,

Please send the work plan (or analogous document) to me and to LDF when it becomes available.

We should have comments for you soon. Do you know whether any conductivity values are in the files from the work performed in the 1990s/2000s? They would be good for comparison to new data.

Thank you.

Bob Egan

Corrective Action Manager

Underground Storage Tanks Section

RCRA Branch

EPA Region 5

(312) 886-6212

(312) 692-2911 (fax)

From: Saari, Christopher A - DNR [mailto:Christopher.Saari@wisconsin.gov]
Sent: Thursday, February 11, 2016 8:55 AM
To: Egan, Robert <egan.robert@epa.gov>
Cc: Robinson, John H - DNR <John.Robinson@wisconsin.gov>; Fassbender, Judy L - DNR <Judy.Fassbender@wisconsin.gov>
Subject: Tower Standard Hydraulic Conductivity Testing

Hi Bob:

I received a cost proposal from REI to perform the hydraulic conductivity measurements that we discussed in Madison last week, and I wanted to run the concept by you to make sure it will meet the needs of EPA and LDF. In a nutshell, REI has proposed:

- Complete hydraulic conductivity calculations at all 17 wells (assume 2 hours per test)

- Data interpretation: download well specific data and conduct hydraulic conductivity calculation. Data to be presented will include copy of data download graph and conductivity calculation

- Datalogger charge: REI will be using InSitu Level Troll 500 loggers. The loggers will be atmospherically vented and will automatically compensate for barometric pressure fluctuations. REI will also use a water level indicator to collect manual measurements to ensure data is calibrated.

REI indicated that typically they run slug tests (introduce stainless slug and allow water levels to stabilize and pull the slug and measure recovery). Per Dave Larsen, some of the wells probably will recover too soon for this method and Larsen want to make sure that all parties are on board with these methods.

I should be available today if you want to discuss this, but I'll be out tomorrow. Otherwise next week would be fine, too. Thanks.

We are committed to service excellence.

Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Chris Saari
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
Phone: (715) 685-2920
Fax: (715) 685-2909
Christopher.Saari@Wi.gov


dnr.wi.gov